

Table A. Management requirements to reduce or prevent adverse effects by Feather Falls Salvage Project.

| Potential Affected Resource(s) | Management Requirements Designed to Reduce or Prevent Adverse Effects | Responsible Person(s) |
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| Heritage Resources | Heritage Resources will be designated on the ground prior to implementation of all project activities. Protect Heritage Resources that have been identified on the ground with flagging as well as those identified on maps provided by the District Archaeologist. | District Archaeologist, Layout/Contract Specialist, and Sale Administrator |
| Heritage Resources | Management of Heritage Resources: Protect all Heritage Resources with flagged control areas. Utilize directional felling methods as appropriate to protect heritage resources. Buffer zones may be designated to ensure added protection. Sale Administrator, Contract Inspector, and/or Archaeologist will walk all sites with purchaser, contractor, or force account staff prior to start of project activities. | District Archaeologist, Layout/Contract Specialist, and Sale Administrator |
| Heritage Resources | Management of Linear Heritage Resources: Directionally fell trees parallel to or away from linear Heritage Resources (trails, ditches, roads etc.); existing breaches will be used whenever possible; if necessary, new breaches will be designated by the District Archaeologist; and isolated trees inside of linear Heritage Resource features may be felled on a case-by-case basis and with on-the-ground approval of the District Archaeologist. | District Archaeologist, Layout/Contract Specialist, and Sale Administrator |
| Heritage Resources | <p>Guidelines 2.1(a) for approved Standard Protection Measures established in the 2018 Regional Programmatic Agreement Regarding Compliance with Section 106 of the National Historic Preservation Act.</p> <p>Linear sites (e.g., historic trails, roads, railroad grades, ditches) may be crossed or breached by equipment in areas where their features or characteristics clearly lack historic integrity (i.e., where those portions do not contribute to site eligibility or values).</p> <p>(1) Crossings are not to be made at the points of origin, intersection, or terminus of linear site features.</p> <p>(2) Crossings are to be made perpendicular to linear site features.</p> <p>(3) The number of crossings is to be minimized by project and amongst multiple projects in the same general location.</p> <p>(4) The remainder of the linear site is to be avoided, and traffic is to be clearly routed through designated crossings.</p> | District Archaeologist, layout/Contract Specialist, and Sale Administrator |
| Heritage Resources | <p>Guidelines 2.1(b) for approved Standard Protection Measures established in the 2018 Regional Programmatic Agreement Regarding Compliance with Section 106 of the National Historic Preservation Act.</p> <p>Accumulation of sufficient snow over archaeological deposits or historic features to prevent surface and subsurface impacts. Undertaking activities may be implemented over snow cover on historic properties under the following conditions:</p> <p>(1) The cover must have at least 12 inches depth of compacted snow or ice throughout the duration of</p> | District Archaeologist, layout/Contract Specialist, and Sale Administrator |

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| | <p>undertaking activities on sites.</p> <p>(2) All concentrated work areas (e.g., landings, skid trails, turnarounds, and processing equipment sites) shall be located prior to snow accumulation and outside historic property boundaries.</p> | |
| Heritage Resources | <p>Guidelines 2.1(c) for approved Standard Protection Measures established in the 2018 Regional Programmatic Agreement Regarding Compliance with Section 106 of the National Historic Preservation Act.</p> <p>Placement of foreign, non-archaeological material (e.g., padding or filter cloth) within transportation corridors (e.g., designated roads or trails, campground loops, boat ramps, etc.) over archaeological deposits or historic features to prevent surface and subsurface impacts caused by vehicles or equipment. Such foreign material may be utilized on historic properties under the following conditions:</p> <p>(1) Engineering will design the foreign material depth to acceptable professional standards;</p> <p>(2) Engineering will design the foreign material use to assure that there will be no surface or subsurface impacts to archaeological deposits or historic features;</p> <p>(3) The foreign material must be easily distinguished from underlying archaeological deposits or historic features;</p> <p>(4) The remainder of the archaeological site or historic feature is to be avoided, and traffic is to be clearly routed across the foreign fill material; and</p> <p>(5) The foreign material must be removable should research or other heritage need require access to the archaeological deposit or historic feature at a later date.</p> | District Archaeologist, Layout/Contract Specialist, and Sale Administrator |
| Heritage Resources | <p>Guidelines 2.2(a) for approved Standard Protection Measures established in the 2018 Regional Programmatic Agreement Regarding Compliance with Section 106 of the National Historic Preservation Act.</p> <p>Felling and removal of hazard, salvage, and other trees within historic properties under the following conditions:</p> <p>(1) Trees may be limbed or topped to prevent soil gouging during felling;</p> <p>(2) Felled trees may be removed using only the following techniques: hand bucking, including use of chain saws, and hand carrying, rubber tired loader, crane/self-loader, helicopter, or other non-disturbing, HPM-approved methods;</p> <p>(3) Equipment operators shall be briefed on the need to reduce ground disturbances (e.g., minimizing turns);</p> <p>(4) No skidding nor tracked equipment shall be allowed within historic property boundaries; and</p> <p>(5) Where monitoring is a condition of approval, its requirements or scheduling procedures should be included in the written approval.</p> | District Archaeologist, Layout/Contract Specialist, Tribal Monitors, and Sale Administrator |

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| Heritage Resources | <p>Guidelines 2.2(b) for approved Standard Protection Measures established in the 2018 Regional Programmatic Agreement Regarding Compliance with Section 106 of the National Historic Preservation Act.</p> <p>For fire, and hazardous fuels and vegetation management projects, HPM/DHPS, in conjunction with fuels, vegetation management, or fire specialists as necessary, shall develop treatment measures for <i>at risk</i> historic properties (as defined in SHPO approved Region 5 modules and agreements) designed to eliminate or reduce potential adverse effects to the extent practicable by utilizing methods that minimize surface disturbance, and/or by planning project activities in previously disturbed areas or areas lacking cultural features.</p> <p>(I) The following standard protection measures apply to fire, hazardous fuels, and vegetation management projects:</p> <p>(I) Mechanically treated (crushed/cut) brush or downed woody material may be removed from historic properties by hand, through the use of off-site equipment, or by rubber-tired equipment approved by HPMs or qualified Heritage Program staff. Ground disturbance shall be minimized to the extent practicable during such removals.</p> <p>(J) Woody material may be chipped within the boundaries of historic properties so long as the staging of chipping equipment on-site does not affect historic properties and staging areas are specifically approved by HPMs or qualified Heritage Program staff.</p> <p>(K) HPMs shall approve the use of tracked equipment to remove brush or woody material from within specifically identified areas of site boundaries under prescribed measures designed to prevent or minimize effects. Vegetative or other protective padding may be used in conjunction with HPM authorization of certain equipment types within site boundaries.</p> | District Archaeologist, Layout/Contract Specialist, and Sale Administrator |
| Heritage Resources | Logging Camps: Proposed logging camps and other staging areas need to be agreed upon with the District Archaeologist prior to use. | District Archaeologist, Layout/Contract Specialist, and Sale Administrator |
| Lands | Protect land survey signs and monuments, even if burned, or laying on the ground. | Layout/Contract Specialist, Sale Administrator, and Public Service Officer |
| Lands | Notify private property owners within the Feather Falls area of initial logging schedule. | Layout/Contract Specialist, Sale Administrator, and Public Service Officer |
| Minerals | Notify mining claimants within the Feather Falls Area of impending harvest schedule once it is known. | Minerals Officer and Sale Administrator |
| Rare Plants - Conservation | <p>Botany Controlled Areas (CAs) have been established for the protection of rare plants.</p> <ul style="list-style-type: none"> Controlled Areas for Butte County fritillary: No ground | Botanist, Project Implementation Teams, Contract |

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| | <p>disturbance allowed within these Controlled Areas.</p> <ul style="list-style-type: none"> In certain situations the project implantation team may consult with the botanist regarding additional small impacts within Controlled Areas. | Administrators |
| Rare Plants - Conservation | <p>Botany Controlled Areas will be shown on the project implementation maps, and be flagged on the ground by red-and-black-stripe and blue-and-black-stripe flagging always tied together (or by some other demarcation agreed to by the botanist and recreation team).</p> <ul style="list-style-type: none"> Contact the District Botanist immediately prior to project implementation to ensure that flagging is in place and refreshed as necessary. | Botanist, Implementation Team, and Contract Administrator |
| Non-native Invasive Plants (NNIP) - Prevention | Ensure that all plant material and fill material used for erosion control and/or road maintenance is free of NNIP, including straw, mulch, gravel, and rock (<i>certified weed-free</i>). | Botanist, Implementation Team, and Contract Administrator |
| Non-native Invasive Plants (NNIP) - Prevention | Clean all off-road equipment entering the project area if it may be coming from areas infested with nonnative invasive plants (NNIP). | Botanist, Project Implementation Teams, Contract Administrator |
| Non-native Invasive Plants (NNIP) - Prevention | <p>To the greatest extent feasible keep all equipment, vehicles, and supplies out of areas of known NNIP infestations, including any NNIP infestations along access routes and new infestations that may be discovered during project implementation. NNIP infestations may sometimes be flagged with bright orange “noxious weed” flagging.</p> <ul style="list-style-type: none"> Any equipment, vehicles, and supplies that do come in contact with NNIP infestations (plants or the ground close to them) during project implementation should be thoroughly cleaned of dirt, mud, and plant debris before entering any un-infested project area. Hand cutting of broom plants and placement of burn piles on top of NNIP infestations is encouraged. <p>New infestations should be mapped and reported to the District Botanist.</p> | Botanist, Fuels Officer, Project Implementation Teams, Contract Administrators |
| Non-native Invasive Plants (NNIP) - Prevention | <p>Members of the project implementation teams (layout crew, contract administrator, etc.) should watch for and be able to recognize NNIP.</p> <ul style="list-style-type: none"> New infestations should be mapped and reported to the District Botanist, and flagged and avoided. <p>As time allows, pull some or all of NNIP encountered during project activities (avoiding archaeology controlled areas).</p> | Botanist, Project Implementation Teams, Contract Administrators |
| Non-native Invasive Plants (NNIP) - Prevention | <p>Monitor areas of project related ground disturbance (e.g. skid trails, temp roads, landings, trails, etc.) for NNIP for up to 10 years following project implementation.</p> <ul style="list-style-type: none"> As funding becomes available, new and old infestations of NNIP should be pulled or otherwise treated. New infestations should be mapped and reported to the District Botanist. | Botanist and Implementation Team |
| Recreation and Public Use | Provide for public safety and education by posting signs to inform public of project activities. Whenever possible, post | Layout/Contract Specialist, Fuels |

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| | notices on PNF website prior to treatments. Keep information current. | Specialist, and Recreation Specialist |
| Recreation and Public Use | If any barriers (including boulders or natural materials) or improvements are damaged or removed during activities, they must be replaced and re-installed in the same location and manner immediately following vegetation management operations. | Layout/Contract Specialist, Fuels Specialist and Recreation Specialist |
| Recreation and Public Use | Keep open all roads that access private property and the Plumas National Forest except for brief closures for public safety. | Layout/Contract Specialist and Public Service Officer |
| Recreation and Public Use | All landing expansion shall be away from roads. Landings should be 200 feet or more off roads, unless otherwise agreed upon with Public Services Officer. Any openings in the immediate foreground should be limited to one quarter acre in size. | Layout/Contract Specialist and Recreation Officer |
| Silviculture | Protection of specially identified trees. They are usually identified with various types of metal, wood, or plastic tags or signs. 1. Location, survey marker, or bearing trees. 2. Proven rust resistant sugar pine trees. 3. Genetically superior tree of any species. | Contract Specialist |
| Silviculture | Hand Cutting, Piling, and Burning. 1. Leaner's/Hang-ups - No contractor created slash shall be left suspended by, or lean against, a leave tree; whether it is dead or alive. 2. Lopping and Scattering: Slash shall be lopped and scattered away from the bole of residual leave trees so that it lies outside of the drip line. 3. Piling and burning: Piles shall be placed away from residual leave trees to avoid being scorched during burning. Piles cannot be located on or against stumps and logs. | Contract Specialist |
| Fire and Fuels | Activity Generated Slash adjacent to FS roads. Pile all activity generated slash 100' depth of project area and covered with waterproof covering for burning during winter months. Piling and Burning Landings: Landings created for optimal winter weather burning. Waterproof covering on multiple locations of pile. Landing Temp Roads: Landings created for burning need to have roads accessible for fire engine access during ignition and monitoring phases. Landing Placement: Landing can scorch and burn live trees 50-100 feet in distance. Landing Fire Lines: 6-10-foot fire line created around each landing. | Contract Specialist and Fuels Implementation Team |
| Road Maintenance and Safety | Protect all improvements along roadways including road surface, signs, ditches, and drainage structures. | Maintenance Engineer, Contract Specialist |
| Watershed, Soils and | Implementation buffers for hydrologic features. See table | Contract Administrator |

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| Aquatic Resources | below. | | | | and Hydrologist | |
| | | | | | | |
| Stream Type | Equipment Exclusion Zone (EEZ) for Salvage, Yarding, and Machine Piling of Slash ¹ | | Mastication | Underburn ² | Hand Cut ³ | Minimum Distance to Burn Piles |
| | Slope <35% | Slope >35% | | | | |
| Perennial streams | 100 feet | Excluded | 50 feet | 150 feet | No buffer | 25 feet |
| Intermittent streams | 100 feet | Excluded | 50 feet | 150 feet | No buffer | 25 feet |
| Ephemeral streams | 50 feet | Excluded | 25 feet | 150 feet | No buffer | 25 feet |
| Special Aquatic Features (Reservoirs, wetlands, fens, and springs) | 100 feet | Excluded | 50 feet | 150 feet | Perimeter | 25 feet |
| Riparian Features: dry meadows, seasonal wetlands | 0 to 25 ⁴ feet | Excluded | 25 feet | 150 feet | Perimeter | 25 feet |
| 1. No reaching in within the zone to remove felled trees. Fell trees away from the stream. 2. Prescribed burning would be allowed within RCAs, but there would be no ignitions in riparian vegetation. Fire may back through this zone. 3. May hand cut within RCA feature but don't cut riparian vegetation. Don't cut vegetation that provides stream bank stabilization. Adhere to the minimum distance for burn piles. No hand cutting within special aquatic features and riparian features unless marked by hydrologist and/or biologist. 4. Meadows may have no buffer to a 25 ft. buffer depending on the individual meadow. Buffers may vary due to the condition of the meadow (i.e. meadow is encroached with trees). | | | | | | |
| Watershed and Soils | Erosion Hazard Rating (EHR) for the project is low therefore the percent effective soil cover post implementation should be 50 percent or more. If effective soil cover is not met than minimize the amount of slash taken to landings and scattered it in bare areas to increase soil cover. Minimize the amount of slash taken to landings. If slash is not available, then weed free straw can be applied. The spread of weed free straw needs to be at a minimum of ½ inch thick. | | | | Contract Administrator and Hydrologist | |
| Watershed and Soils | To reduce ground disturbance created by equipment within RCAs, vary the routes the equipment uses and minimize turning of equipment. | | | | Contract Administrator and Hydrologist | |
| Watershed and Soils | If effective soil cover is below the desired level of soil cover along streams, then leave slash material to increase soil cover. When cutting trees lop and scatter broken tops and limbs within 1 tree length of any stream. | | | | Contract Administrator and Hydrologist | |
| Watershed, Soils, and Aquatic Resources | Place rock on roads at stream crossings and segments within identified RCAs to reduce the impact of sediment delivery to associated stream courses. Place rock, slash, or certified NNIP free mulch at the outlets of rolling dips and/or waterbars to dissipate water where identified by road engineer and soil scientist, and/or hydrologist. | | | | Contract Administrator and Hydrologist | |
| Watershed and Soils | Skid trails should add ground cover/slash between its waterbars and the outlets of the waterbars. Effective soil | | | | Contract Administrator and Hydrologist | |

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| | cover percentages should be 50 percent between waterbars and 70% at waterbar outlets. | |
| Watershed, Soils, and Aquatic Resources | <p>Water Source Use:</p> <p>Where overflow runoff from water trucks or storage tanks may enter the stream, effective erosion control devices shall be installed.</p> <p>Armor road approaches as necessary from the end of the approach nearest a stream for a minimum of 50 feet, or to the nearest drainage structure.</p> <p>All water-drafting vehicles shall be checked routinely and shall be repaired as necessary to prevent leaks of petroleum products from entering RCAs.</p> <p>Water-drafting vehicles shall contain petroleum spill kits. Dispose of absorbent pads according to the Hazardous Response Plan.</p> <p>Survey all proposed drafting locations for sensitive and listed amphibians and receive approval from a biologist prior to use. Use drafting devices with 2-mm or less screening and place hose intake into bucket in the deepest part of the pool. Use a low velocity water pump and do not pump ponds to low levels beyond which they cannot recover quickly (approximately one hour).</p> <p>If a sensitive or listed amphibian is sighted within the project area, cease operations in the sighting area, and inform a Forest Service aquatic biologist of the sighting immediately</p> | Planning Forester, Prep Forester, Sale Administrator, Aquatic Biologist and Hydrologist |
| Watershed, Soils, and Aquatic Resources | Allow mechanical operations only when soil moisture conditions are such that compaction, gullyng, and/or rutting will be minimal. Conduct ground based mechanical operations when soil is dry; that is, in the spring when soil moisture in the upper 8 inches is not sufficient to allow a soil sample to be squeezed and hold its shape, or will crumble when the hand is tapped. In the summer and early fall after storm event(s) when soil moisture between 2-8 inches in depth is not sufficient to allow a soil sample to be squeezed and hold its shape or will crumble when the hand is tapped. Off of designated skid trails, limit all equipment passes over the same piece of ground to reduce the potential for adverse soil compaction. | COR (Contracting Officer's Representative), Soil Scientist, and Hydrologist |
| Watershed and Soils | <p>Limit tractor skidding to less than 35 percent slopes unless a watershed specialist evaluates operations on the steeper slopes. Tractor skidding may occur on slopes greater than 35 percent only in short pitches less than 200 feet in distance. Where skidding occurs on slopes greater than 15 percent and effective soil cover off of skid trails is less than 50 percent, scatter slash on skid trails to achieve at least 50 percent effective soil cover.</p> <p>Effective soil cover could include organic surface materials (> ½ inches thick), woody material in contact with the soil (> ¼ inches thick in diameter), living vegetation, and rock fragments (> ¾ inches thick). Use of weed free straw, wood</p> | Contract Administrator and Hydrologist |

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| | chips, or mulch may be used where on-site material is insufficient. | |
| Watershed and Soils | <p>Temporary roads: Following temporary road use, remove culverts, eliminate ditches, out-slope roadbed, remove ruts and berms, effectively block the road to normal vehicular traffic where feasible under existing terrain conditions, and build cross ditches and water bars.</p> <p>Subsoil all temporary roads and add effective soil cover to bare soil.</p> <p>Add 100 feet of on effective soil cover on both sides of a perennial stream and 75 feet on seasonally flowing streams. Effective soil cover could include organic surface materials (> ½ inches thick), woody material in contact with the soil (> ¼ inches thick in diameter), living vegetation, and rock fragments (> ¾ inches thick). Use of weed free straw, wood chips, or mulch may be used where on-site material is insufficient.</p> | Contract Administrator and Hydrologist |
| Watershed and Soils | Log Landings: re-use log landings to the extent feasible. Limit new landings to ¼ to ½ acre in size. | Contract Administrator and Hydrologist |
| Watershed and Soils | <p>Recommended spacing for cross drainage spacing on skid trail and temporary roads:</p> <p>Slope Gradient Cross Drain Spacing</p> <p>1-6% 250'</p> <p>7-9% 150'</p> <p>10-14% 125'</p> <p>15-20% 60'</p> <p>21-40% 30'</p> | Contract Administrator and Hydrologist |
| Watershed, Soils, and Aquatic Resources | To reduce the potential for adverse cumulative watershed effects, implement state certified Best Management Practices (BMPs). Site specific BMPs applicable to this project (located in project record file) include BMP 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.8, 1.9, 1.10, 1.11, 1.12, 1.13, 1.14, 1.15, 1.16, 1.17, 1.19, 1.20, 1.21, 2.2, 2.3, 2.4, 2.5, 2.6, 2.8, 2.11, 5.1, 5.2, 5.4, and 5.6. | Planning Forester, Contract Administrator, and Hydrologist |
| Wildlife | Incidental detections of federally listed and sensitive species prior to or during project implementation will be reported to the District Wildlife Biologist for protection in accordance with management direction for the Plumas National Forest. | Wildlife Biologist, Contract Specialist, and Contractor |
| Wildlife | Leave additional large snags (> 4/acre) where possible to mitigate effects for bats and woodpeckers. | Wildlife Biologist, Contract Administrator, and Contractor |
| Wildlife | If species are found prior or during project activities: Follow Standard Provisions C6.24 & C8.2 B6.24 Site Specific Special Protection Measures – Wildlife Protection Measures CT6.313 Limiting Operating Periods & Forest Service manual (FSM) 2670.32 and 2670.22. | Wildlife Biologist, Contract Administrator, and Contractor |

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| Aquatic | Follow RCAs and ROCs as documented by the District Hydrologist above. | Wildlife Biologist, Contract Administrator, and Contractor |

Attachment A: Effective Ground Cover

Excerpted from: Attachment C – Post-Fire Management and Reforestation Plan Order No. R5-2017-0061 Waste Discharge Requirements General Order for Discharges Related to Timberland Management Activities on Non-Federal and Federal Lands

“Effective Ground Cover”, [...] means any combination of slash (lopped and in close contact with the ground), mulch (large wood chips, wood shreds, wood strand blends, straw, bark, surface rock fragments larger than $\frac{3}{4}$ inch), plants, and plant litter. Large wood chips are a minimum of 2 inches in length and at least four (4) times longer than they are wide:

Image 1

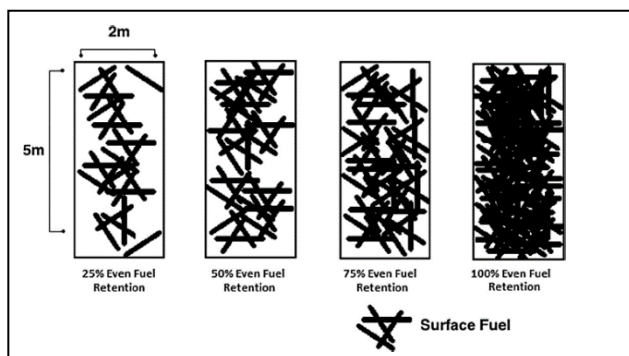


Image 2



Fifty-percent ground cover documentation shall use standard methods including aerial photography analysis, point intercept, plot, or transect methods, or any combination thereof.

The Discharger shall provide documentation of ground cover sampling methodology, locations of any ground-based sampling points, and any ground-based verification points or plots for aerial photo estimates. Image 1 above, borrowed from Harrison et. al 2016, is a schematic that illustrates even distribution of 25, 50, 75, and 100% ground cover. Additionally, Image 2 above, borrowed from the [Natural Resource Conservation Service at: https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ny/technical/ecoscience/agronomy/](https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ny/technical/ecoscience/agronomy/), provides a useful image of 50% ground cover.